09/350466

PATENT

COPY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

re application	:	Mark T. Spitler et al.
Patent No.	:	6,812,035
Issued	:	November 2, 2004
For	:	DYE DESORTION MOLECULAR INDICATOR
Attorney's Docket	:	CHEMM-101XX

* *

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: ATTN: Certificates of Correction, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on Feb. 20, 2008.

By: Holliday C. Heine
Holliday C. Heine, Ph.D.
Registration No. 34,346
Attorney of Record

* *

L E T T E R

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
ATTN: Certificates of Correction

Sir:

Enclosed are two completed copies of Form PTO 1050. It is requested that a Certificate of Correction be issued to correct the mistakes of the Patent Office in the printing of the above-identified patent.

In order for timely expedition of this request, also enclosed is a copy of the Amendment dated August 7, 2003.

Respectfully submitted,

MARK T. SPITLER ET AL.

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Enclosure 336379.1

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 6,812,035
APPLICATION NO. : 09/350,466
DATED : November 2, 2004
INVENTOR(S) : Mark T. Spitler, et al.

It is certified that errors appear in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 50, "Streptococcus" should be italicized and read --*Streptococcus*--;

Column 1, line 68, "calorimetrically" should read --colorimetrically--;

Column 2, line 12, "Ca++" should read --Ca^{++}--;

Column 3, line 47, delete the word "us";

Column 8, line 35, "De" should read --be--;

Column 16, line 64, "D_{min}" should read --D_{max}--;

Column 16, line 68, "D_{min}" should read --D_{max}--;

Column 17, claim 1, line 13, "said solid" should read --on said solid--;

Column 18, claim 14, line 47, after "population of molecules" please insert the following:

--correlating the amount of said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material desorbed from said molecularly permeable solid with the amount of target analyte present in said population of molecules,

wherein one or more analytes or classes of analytes are detected--; and

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DATED	:	November 2, 2004
INVENTOR(S)	:	Mark T. Spitler, et al.

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Column 20, after claim 21, lines 3-9 should be deleted.

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PATENT NO. 6,812,035

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PATENT NO. 6,812,035

Rev 05/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventive application	:	Mark T. Spitler et al
Application No.	:	09/350,466
Filed	:	July 9, 1999
For	:	DYE DESORPTION MOLECULAR INDICATOR
Examiner	:	L. Cross
Attorney's Docket	:	CHEMM-101XX

Group Art Unit: 1743

* *

I hereby certify that this correspondence is being sent via facsimile to Examiner L. Cross, Group Art Unit 1743, Fax No. 703-872-9310, on 8/7/03.

By: _____
Arthur S. Morgenstern
Registration No. 28,244
Attorney for Applicant(s)

* *

AMENDMENT

Via Facsimile
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated May 1, 2003, please amend the above-identified patent application as follows.

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AMENDMENT TO THE CLAIMS

1-20. Cancelled

21. (Currently amended) A broad screen analytical detection element, capable of detection of several classes of gas or liquid analytes, said detection element comprising

a first region comprising a solid and adsorbed on said solid a radiant energy-detectable material or a material capable of producing a radiant energy-detectable material, wherein said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material is desorbable by a target analyte; and

a second region for sequestering radiant energy-detectable material

(a) desorbed from or

(b) produced by material desorbed from

said solid prior to detection of said radiant energy-detectable material,

wherein either said first region or said second region further comprises a high boiling plasticizer/solvent and

wherein classes of gas or liquid analytes are detected.

22. (Previously added) The analytical detection element of claim 21 wherein said solid is selected from the group consisting of activated carbon, silica, alumina, ion exchange resin, molecular sieve and particulate organic polymeric adsorbent.

23. (Previously added) The analytical detection element of claim 21 wherein said detection element is multi-layered and said first region and said second region are in separate layers in said detection element.

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24. Cancelled

25. (Previously amended) The analytical detection element of claim 44 wherein said first region is applied to a surface as a coating material.

26. (Previously added) The analytical detection element of claim 21 wherein said detection element is in multiple small pieces.

27. (Currently amended) A broad screen analytical detection element, capable of detection of several classes of gas or liquid analytes, said detection element comprising

a first region comprising a solid and adsorbed on said solid a radiant energy-detectable material or a material capable of producing a radiant energy-detectable material, wherein said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material is desorbable by a target analyte; and

a second region for sequestering radiant energy-detectable material desorbed from or produced by material desorbed from said solid prior to detection of said radiant energy-detectable material,

wherein said detection element is in the form of multiple small pieces and

wherein classes of gas or liquid analytes are detected.

28. (Previously added) The analytical detection element of claim 21 further comprising a background region against which radiant energy-detectable material can be detected.

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29. (Previously added) The analytical detection element of claim 21 wherein a material capable of producing a radiant energy-detectable material is adsorbed on said solid and said material capable of producing a radiant energy-detectable material is capable of initiating a chemical reaction or physical process that results in a change in a radiant energy-detectable material residing in said second region.

30. Cancelled

31. (Previously amended) The analytical detection element of claim 32, wherein said detection element contains one or more additional layers.

32. (Previously amended) The analytical detection element of claim 43, wherein said second region is between said first region and said transparent base layer in said detection element.

33. (Currently amended) A broad screen analyte detection badge comprising the broad screen analytical detection element of claim 43, wherein classes of gas or liquid analytes are detected.

34. (Currently amended) A broad screen analyte detection badge comprising the analytical detection element of claim 21, wherein classes of gas or liquid analytes are detected.

35-36. Cancelled

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37. (Currently amended) A coating material comprising the broad screen analytical detection element of claim 21, wherein classes of gas or liquid analytes are detected.

38. (Currently amended) A broad screen method for detection of one or more analytes or classes of analytes, said method comprising the steps of:

providing an analytical detection element, said detection element comprising a solid and adsorbed on said solid a radiant energy-detectable material or a material capable of producing a radiant energy-detectable material, wherein said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material is desorbable by a target analyte;

exposing said analytical detection element to a population of molecules possibly containing said target analytes for a period of time sufficient to permit desorption by said target analytes of said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material from said solid, wherein said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material desorbed by said target analyte is made mobile by the presence of a high boiling plasticizer/solvent;

determining the amount of said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material desorbed from said solid; and

correlating the amount of said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material desorbed from said solid with the amount of target analyte present in said population of molecules.

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correlating the amount of said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material desorbed from said molecularly permeable solid with the amount of target analyte present in said population of molecules,

wherein one or more analytes or classes of analytes are detected.

39. (Previously added) The method of claim 38 wherein, in said providing step, said solid in said analytical detection element is selected from the group consisting of activated carbon, silica, alumina, ion exchange resin and molecular sieve.

40. (Previously added) The method of claim 38 wherein, in said providing step, said analytical detection element is multi-layered and said first region and said second region are in separate layers in said detection element.

41. (Previously added) The method of claim 38 wherein, in said providing step, said analytical detection element further comprises a background region against which radiant energy-detectable material can be detected.

42. (Previously added) The method of claim 38 wherein, in said analytical detection element in said providing step, a material capable of producing a radiant energy-detectable material is adsorbed on said solid and said material capable of producing a radiant energy-detectable material is capable of initiating a chemical reaction or physical process that results in a change in

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a radiant energy-detectable material residing in said second region.

43. (Previously added) The broad screen analytical detection element of claim 21, wherein
said first region constitutes a sample capture layer,
said second region contains (a) a concentrating or mordanting layer, (b) an opacifying or reflecting layer or (c) both said layers;
and wherein said analytical detection element also comprises a transparent base layer.

44. (Currently amended) A broad screen analytical detection element, capable of detection of several classes of gas or liquid analytes, said detection element comprising a first region comprising
(a) a solid and adsorbed on said solid a radiant energy-detectable material or a material capable of producing a radiant energy-detectable material, wherein said radiant energy-detectable material or said material capable of producing a radiant energy-detectable material is desorbable by a target analyte, and
(b) a high boiling plasticizer/solvent,
wherein several classes of gas or liquid analytes are detected.

45. (Previously added) The method of claim 38 wherein said high boiling plasticizer/solvent is selected from the group consisting of alcohols, diols and higher polyols, sulfoxides, amides, esters, carbonates and ketones.

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46. (Previously added) The method of claim 45 wherein said high boiling plasticizer/solvent is selected from the group consisting of propylene carbonate; 1,4-butanediol; 1,2-propanediol; and 2-methyl-1,3-propanediol.

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REMARKS

1. This is in response to the Office Action mailed May 1, 2003. Claims 21-23, 25-29, 31-34, and 37-46 remain pending in this application.

2. Applicant appreciates the courtesy extended by the Examiner in allowing a telephone interview on August 5, 2003. Participating were Examiner LaToya I. Cross, Dr. Louis Stuhl (co-inventor), and Arthur S. Morgenstern (attorney of record). Several figures and tables were faxed to the Examiner for use in the interview, and copies of those items (slightly modified) are enclosed.

3. Based on the discussion with examiner, Applicant has amended the independent claims to include within the body of the claim the fact that the gas or liquid analytes are detected.

4. Applicant requests reconsideration of the rejections under 35 USC 102 based on Haas.

a. Haas does not detect chemical analytes. The reaction in Haas begins only when the 2 layers (12 and 14 in Haas) are joined.

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Thus Haas is a device that is a time indicator. (See the title of Haas, which is consistent with this description of his device.)

b. There is no dye adsorbed on solid in Haas. See page 2 of the enclosed fax, where the thick arrow (labeled "do not correspond") shows where the layer in the instant invention (layer numbered 18) contains dye on solid (indicator / adsorbant), while the corresponding layer in Haas (labeled 36) contains only dye and adhesive.

c. The plasticizer in Haas is the activator. I.e., when the 2 layers are joined, the plasticizer from sub-layer 20 in back layer 14 of Haas migrates into the front layer (12) and dissolves the dye (in sublayer 36), allowing it to migrate to the viewing layer, thus creating the color.

On the other hand, in the instant invention, the plasticizer serves as a facilitator for dye migration. It is not the cause of dye migration.

d. Note that pages 2-4 of the figures used the interview relate to differences between the instant invention and Haas. The

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Summary table (page 4 of the enclosed fax) summarizes the differences between the 2 technologies.

5. Applicant requests reconsideration of the rejections under 35 USC 103.

a. The differences between the instant invention and Haas were discussed above.

b. In Burleigh, the dye changes color via a chemical change while it remains attached to the carrier solid. The figure on page 7 of the attached fax (Figure B), shows that the color change occurs while the dye remains attached to the solid in Burleigh. On the other hand, in the instant invention, the dye migrates away from the solid, when it is displaced by the gas or liquid analyte.

c. In the interview, the Examiner asked for an example where the analyte displaced the dye. Dr. Stuhl indicated that the last paragraph of Example 1 (page 28, line 3ff of the original application) indicated that the optical reflection density (OD) at the beginning of the experiment was 0.22, which is nearly white in color. After exposure to dichloromethane, the indicator had an OD of 0.84, which was deep magenta, showing the displacement of dye

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into the concentrating layer. When exposed to toluene vapors, a new indicator displayed an OD of 1.44, even a darker color, indicating migration of dye into the concentrating layer.

d. None of the claims relate to a single layer. Although this terminology appeared in the original version of claims 24 and 25, it should be noted that claim 24 was cancelled in the Amendment filed 11/5/01.

Claim 25 was amended on 11/5/01 to refer to a first region, which is applied as a coating material. The multi-layer detection element claimed in the instant application allows transfer of dye across layers when desorbed by target analyte. This is significantly different from the single layer apparatus referred to by the Examiner (e.g., test strip), which is characterized by migration along the same layer of the test strip.

e. Thus the Summary table explains that the instant invention is different from both Haas and Burleigh individually, as well as the combination of Haas and Burleigh.

Note that only one of the 3 cases in the combination of Burleigh plus Haas is described in the Summary table. (This is case 2, where the dye does not migrate.) In the other 2 cases,

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the dye does migrate away from the solid, but only when the plasticizer from the activator layer is brought into contact with the front layer containing the indicator dye. However, even in these 2 possible combinations of Haas and Burleigh, the solid is not involved in the analyte response, and there is a chemical reaction involved to produce the color change.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

MARK T. SPITLER ET AL

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Arthur S. Morgenstern
Registration No. 28,244
Attorney for Applicant(s)

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